Seattle, a Climate of Change: Meeting the Kyoto Challenge

Climate Action Plan

September 2006

City of Seattle
Mayor Greg Nickels

For more information, visit **www.seattle.gov/climate**

September, 2006

Dear friends:

I am pleased to present the first-ever Seattle Climate Action Plan, a strategy for reducing global warming pollution throughout our community.

This Action Plan implements the 18 recommendations that my Green Ribbon Commission delivered in March, 2006. Its purpose is to provide common-sense steps that people, businesses and the City can take to make a real difference in the battle against climate change.

I launched the Seattle Climate Protection Initiative in February 2005 for three reasons. First, I'm increasingly concerned about the impacts that climate disruption will have on the sources of water we rely on for drinking and powering our city. Second, I believe reducing emission will create new opportunities to improve air quality, public health and quality of life; to save money; and to create jobs—along the path to Seattle becoming even more of a climate leader. Third, I'm disappointed by the lack of meaningful federal action on an issue so critical to the health of our city, our country and our planet. As the world's largest climate polluter, our country has a responsibility to act; we should not simply rejoin the community of nations in this critical task, we should lead it.

Seattle has much to be proud of. City government has reduced its global warming pollution by some 60 percent compared to 1990 levels. In addition, a growing number of Seattle residents, businesses and other institutions are doing their part, which gives us a great foundation on which to build.

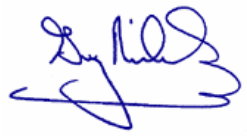
I'm also proud of my fellow mayors across the country, 307 of whom have stepped up to provide the leadership that this growing crisis demands by signing the U.S. Mayors Climate Protection Agreement. Those mayors represent more than 50 million people, and together we're reducing climate pollution in our cities, raising awareness and inspiring action across the country, and setting the stage for stronger national climate policy.

But it's only a beginning. The science is increasingly clear that we must go well beyond the Kyoto target to stabilize our climate.

Global warming is an extraordinary challenge that requires an extraordinary response. But Seattle is up to the task. Historically, we chose energy conservation and renewable energy over nuclear power. We chose waste reduction and recycling over incineration. We chose water conservation over financially – and environmentally – costly new supplies. Now it's time to choose development patterns, transportation options and urban lifestyles that reduce our dependence on fossil fuels, making our community healthier, more prosperous and less vulnerable to volatile world oil markets.

I urge you not only to read this document, but to hold us accountable for its implementation. And, I urge you to do <u>your</u> part to reduce Seattle's contribution to climate disruption. Together, we can make Seattle America's most climate-friendly city.

Sincerely,



GREG NICKELS

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Mayors Leading the Way

What began as a simple call to action has emerged as a powerful – and growing – coalition of American mayors who are working locally to fight global warming and change national policy. Mayor Nickels challenged his colleagues across the country to join with Seattle in reducing greenhouse gas emissions. By September 2006, more than 300 mayors representing 50 million people in 46 states had signed his US Mayors Climate Protection Agreement.

Now the US Conference of Mayors, which unanimously endorsed the Agreement in June 2005, has created a new US Mayors Council on Climate Protection. The Council, co-chaired by Mayor Nickels, is partnering with ICLEI – Local Governments for Sustainability to recruit more mayors, help participating cities implement climate protection actions, track progress, and increase mayors' participation in, and influence on, national policy-making.

For more information on the US Mayors Climate Protection Agreement, please visit www.seattle.gov/mayor/climate

Introduction: Crisis – and opportunity

Global climate disruption - and the inescapable conclusion that pollution from human activities is a major cause - is the defining challenge of our time. The signs are all around us. We just experienced one of the hottest, driest August on record. Wildfires and severe storms are increasing in frequency and intensity. The mountain snowpack from which we've drawn drinking water and electricity for 100 years is in decline.

Concerned about these and other local impacts, Mayor Nickels launched the Seattle Climate Protection Initiative. On February 16, 2005, the day the international Kyoto Protocol became law in the 141 countries, Mayor Nickels challenged the Seattle community to meet or beat its climate pollution-cutting goal. He appointed a Green Ribbon Commission on Climate Protection to develop recommendations for reducing Seattle's emissions. In addition, Mayor Nickels and nine other mayors launched the US Mayors Climate Protection Agreement.

In March 2006, the Mayor's Green Ribbon Commission delivered its report, featuring 18 recommendations for meeting or beating the Kyoto target: a 7 percent reduction by 2012, compared to 1990 levels. For Seattle, this means reducing our emissions of carbon dioxide and other climate-disrupting greenhouse gases by about 680,000 tons. That's about the amount of climate pollution generated by 147,000 cars in a year.

This Seattle Climate Action Plan is the City's strategy for implementing the Commission's recommendations and meeting the Kyoto target in ways that also improve public health, enhance quality of life and bolster economic vitality.

About this Action Plan

This Action Plan describes high-priority climate protection actions and investments for the next two years, with a strong focus on the two major sources of global warming pollution in Seattle: motor vehicle emissions and natural gas consumption by homes and businesses.

The primary focus is on actions the City will take, both to achieve further reductions in its own greenhouse gas emissions and to promote reductions by Seattle's households, businesses and public institutions. In addition, the Plan provides climate protection action tips, describes what the City will do to effectively integrate climate impacts into planning and resource management, and lays out what the Mayor and City will do to promote the strong regional, state and federal policies and programs that are necessary to curb climate pollution.

The Action Plan builds on the City's already substantial investments in climate protection. It calls for City departments to do even more within existing resources, for example by integrating climate protection goals into the City's purchasing and investment practices. In addition, it calls for significant new investment, through the Mayor's proposed 2007-2008 budget, submitted to the City Council in September 2006, and the *Bridging the Gap* transportation funding proposal to be decided by Seattle voters in November 2006.

The steps described in this Action Plan, will take us a long way toward our target. We will closely monitor our progress every step of the way. The publication of this Action Plan is only a beginning. The Office of Sustainability and Environment will lead an intensive interdepartmental and community-wide effort to implement this plan. And we will produce a progress report and Action Plan update every two years, with the Mayor's biennial budget proposal.

The Highlights

This Action Plan calls for continuing and expanding three efforts that are critical to meeting our climate pollution-cutting goals:

- Since motor vehicle emissions are the single largest source of climate pollution in Seattle, the City must do even more to provide climate-friendly transportation choices such as public transit, biking and walking – and to encourage greater use of those alternatives. This Action Plan calls for significant improvements in infrastructure and incentives, including additional investments to make transit, biking and walking easier, safer and more convenient; a commercial parking tax; and a stronger push toward regional road-pricing strategies that have proven successful in other cities.

- "Smart growth" efforts – policies and regulations that steer the majority of new households and businesses into existing urban centers and villages – are key to reining in not just sprawl, but also global warming pollution in the Seattle region. This Action Plan calls for continued, vigilant focus on creating compact, climate-friendly urban neighborhoods in places such as Northgate, the University District, South Lake Union, and South Downtown.

- Seattle City Light's program to deliver electricity to 370,000 commercial and residential customers with zero net greenhouse gas emissions will continue to be the cornerstone of

About the Green Ribbon Commission

Mayor Nickels appointed the Green Ribbon Commission on Climate Protection in February 2005, and gave them a challenging task: develop recommendations for meeting or beating the Kyoto Protocol target for reducing global warming pollution right here in Seattle. The Commission, a diverse group of civic and business leaders, worked for a year poring over data and sorting through ideas. This Seattle Climate Action Plan is based in large part on the report and recommendations they delivered to the Mayor in March 2006.

"Our recommendations are based on careful review of both the major sources of global warming pollution in the Seattle area, and the most promising solutions from around the world," the Commission wrote in its report to the Mayor. "In our judgment, this is a necessary and achievable set of actions that will significantly reduce greenhouse gas emissions in Seattle, and at the same time create cleaner air, jobs and business opportunities, and a healthier environment for all of us."

For more information on the Commission and its report, please visit www.seattle.gov/climate

the City's climate protection strategy. This Action Plan calls for the utility to continue to meet all new demand through conservation and renewable energy sources, and to balance out all remaining greenhouse gas emissions by purchasing carbon offsets.

In addition to continued and expanded work in these three critical areas, the Action Plan features several new initiatives, including:

- A major push to reduce climate pollution from natural gas use, including a stronger partnership between Seattle City Light and Puget Sound Energy to promote conservation programs; a new hot water conservation initiative by Seattle Public Utilities and Seattle City Light; an increased effort by the City's Green Building Program to promote natural gas efficiency in new and remodeled commercial and residential buildings; and ramped-up efforts to identify and implement natural gas efficiencies in City buildings and facilities;

- A major effort to reduce climate pollution from motor vehicles, including a "Drive Smart" campaign to promote climate-friendly driving habits; a "Smart Fleets" program to encourage Seattle-area commercial fleet operators to increase their fuel efficiency and use of biofuels, and increased use of biofuels in the City's fleet;

- A multi-faceted effort to rally the entire Seattle community to take actions that reduce climate pollution and improve quality of life. This includes an intensive climate protection action-awareness campaign aimed at everyone who lives, works and visits in Seattle; a campaign to turn the City's 10,000 employees into ambassadors for climate protection; a new Seattle Climate Partnership to engage the business community; and a new component of the Neighborhood Matching Fund to promote and fund community-based climate solutions; and,

- A new program to purchase carbon offsets to balance out the emissions from business-related air travel by City employees.

Action #1: Significantly Increase the Supply of Frequent, Reliable and Convenient Public Transportation

The problem, the solution, the benefits

Gasoline fueled cars and light duty trucks travel approximately two billion miles every year in Seattle – which is why they are the single largest source of climate pollution in our city. Getting more people to use public transportation more often is an essential component of this plan. Success depends on fast, frequent, convenient and reliable service.

The City is not directly responsible for providing public transportation – that's the job of King County Metro, Sound Transit, Pierce Transit and Community Transit. But its Department of Transportation is responsible for creating, maintaining and improving roadway infrastructure to provide faster and more reliable transit, including working to reduce congestion and setting traffic signals to give transit priority.

A number of transit improvements are on the horizon:

- King County Metro's *Transit Now* proposal for a one-tenth of 1 percent increase in the County sales tax goes to voters in November 2006. It will provide $10 million annually to fund transit service throughout the region, including RapidRide bus lines from West Seattle to Downtown, Ballard to Downtown and Shoreline to Downtown. A RapidRide line sends buses along the corridor at least every 15 minutes most times of the day, providing riders with more frequent and reliable transit. County officials estimate Transit Now will provide enough service system-wide to get as many as 60,000 drivers out of their cars and onto buses each weekday within 10 years.

- In fall 2007, the South Lake Union Streetcar will begin service, connecting South Lake Union, the new waterfront park, the Denny Triangle and the downtown retail core. Ridership is projected to be 350,000 passenger trips the first year.

- Sound Transit's Link light rail will begin operation between downtown Seattle and SeaTac International Airport in 2009 and is expected to carry 42,500 daily riders initially and 150,000 ultimately.

- Improvements to Sound Transit's Express Bus system are planned. Those already in place resulted in 8.8 million boardings in 2005, a number that is projected to grow to 10.6 million by 2011.

The climate benefits of increased transit ridership are plain: a typical car driven 20 miles, five days a week, 50 weeks a year pumps more than 4,600 pounds of greenhouse gas into the air. Shifting the drivers and riders of those cars onto public transportation would substantially cut greenhouse gas emissions and also improve air quality, reduce congestion for buses and trucks and save money now spent for car maintenance and gas.

New City investments and actions to improve public transportation

Bridging the Gap, the November transportation levy proposal, would make a major investment in public transportation. It provides:

- $1.5 million per year to increase Seattle transit service, which *Transit Now* will match 2:1, for an estimated 45,000 additional hours of service citywide.

- Approximately $3 million for transit corridor and reliability improvements, which *Transit Now* will match with an additional 5,000 service hours per affected route, allowing faster more reliable bus service in some of the city's most congested routes to Downtown including Ballard, West Seattle and Pine Street.

- Funds to complete one corridor improvement per year in 2007 and 2008.

- Funding to make King Street Station a transit hub in South Downtown.

- Funds for synchronizing traffic signal timing to improve traffic flow.

Washington's per capita consumption of highway fuels (on-road use of gasoline and diesel) is 45 percent higher than British Columbia's. -Sightline Institute, Seattle

How we will measure our progress

- Trends in the contribution of gasoline to Seattle's climate pollution levels via updates to the greenhouse gas inventory.
- Percentage of trips made using modes of transportation other than single occupancy vehicles, including transit ridership statistics.
- Vehicle miles traveled in Seattle.

Action #2: Significantly Expand Bicycling and Pedestrian Infrastructure

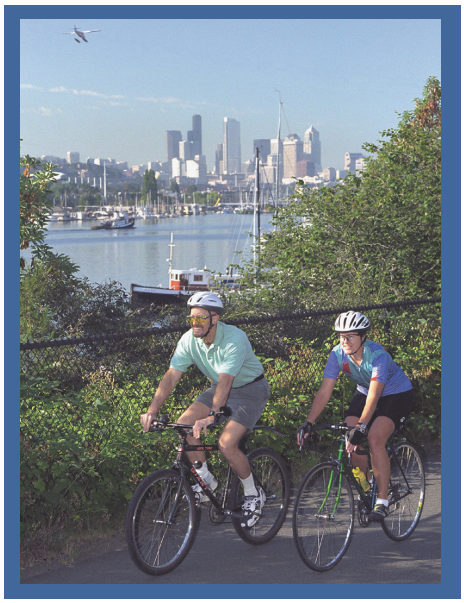
The problem, the solution, the benefits

More than three-fourths of the single-occupant auto trips in Seattle are not commute related, and most are within five miles of home. With nearly a quarter of Seattle's greenhouse gas emissions coming from cars, small trucks and motorcycles, traveling by bike and foot can be a real part of the solution to reduce emissions, saving money and improving public health in the process.

Some 8,000 people bicycle to work in Seattle every day. Our area boasts the largest bicycle club in the nation, the Cascade Bicycle Club. The Burke-Gilman Trail, used by walkers and riders alike, is one of the most heavily used city trails in the country. With improved facilities and better education and enforcement of traffic laws as they relate to bicycle and pedestrian safety, we can take advantage of these attributes to further reduce greenhouse gas emissions.

New City investments and actions to make it easier to bike or walk in Seattle

- To increase bicycle use and improve bicycle safety, the Seattle Department of Transportation (SDOT) will complete the City's first Bicycle Master Plan in 2007. The Plan will ad-



dress opportunities to improve on-road bicycling conditions, develop a wayfinding system, establish facility design guidelines, and create a maintenance plan. Funding for implementation is included in the *Bridging the Gap* transportation package.

- In 2007-2008, SDOT will double the number of bike lanes by painting between 20 and 30 miles of new bicycle lanes with funding included in the *Bridging the Gap* transportation package. In addition, SDOT will identify four-lane corridors that can accommodate bicycle lanes in each direction.

- Legislation to increase bicycle parking requirements for development in neighborhood business districts is awaiting City Council action.

- SDOT helps fund and promote the new BikeStation bicycle transportation center on 3rd Avenue South in Pioneer Square.

- During 2007-2008, SDOT will nearly complete work on the Urban Trails System (Chief Sealth Trail, Burke Gilman Trail extension, Interurban Trail, Duwamish Bikeway, Lake Union Ship Canal Trail, Mountains to Sound Greenway and the Potlatch Trail).

- SDOT will create the City's first Pedestrian Master Plan by the end of 2008.

- To improve pedestrian safety, SDOT is installing 200 sidewalk curb ramps each year and will improve nearly 50 marked cross walks to national safety standards by the end of 2008.

How we will measure our progress

- Percentage of trips made using modes of transportation other than single occupancy vehicles and, specifically, numbers of commuters traveling by bicycle or on foot.
- Numbers of trail users on the Burke-Gilman Trail (survey completed every five years by Bike Alliance and Cascade Bicycle Club).

Action #3: Lead a Regional Partnership to Develop and Implement a Road Pricing System

The problem, the solution, the benefits

Several US communities have succeeded in reducing rush-hour congestion, shifting travel to non-peak times and reducing overall vehicle miles traveled by implementing road pricing systems. We are convinced that a regional road pricing system in the Puget Sound region is a priority.

A system that charges for road use has significant potential to reduce greenhouse gas emissions: drivers respond to the "price signal" and adjust their driving habits accordingly. Road pricing can take many forms, including tolling of particular roads based on congestion levels, time of day, or miles driven; or "high occupancy toll" (HOT) lanes based on levels of congestion. Road pricing lowers vehicle miles traveled while managing traffic flows more efficiently. Revenue can further reduce congestion by funding alternatives like transit, cycling, and walking.

Establishing a pricing system on the region's most congested roads is ultimately the responsibility of the Washington Department of Transportation (WSDOT) which is already studying various road pricing scenarios. Seattle can help ensure that any proposed road pricing system meets the City's traffic management and emission reduction goals by adding its investment to the state's road pricing analysis, and working closely with regional partners like the Puget Sound Regional Council. The benefits of reduced congestion – improved freight and transit times, reduced air pollution and fewer traffic accidents - will accrue to the entire region.

In London, road pricing has reduced CO2 emissions by 16 percent and has made it easier and faster to travel through downtown.

New City investments and actions to lead to regional road pricing

- The Mayor's 2007-2008 budget includes $100,000 for the Seattle Department of Transportation (SDOT) to work with regional partners to analyze and develop road pricing scenarios and address any legal and implementation issues. By the end of 2008, SDOT will report its findings and recommendations on pricing options as well as mechanisms for applying part or all of the road-pricing revenues to fund transit and other alternatives to single occupancy vehicles.

- Key City staff from SDOT, the Mayor's Office and the Office of Intergovernmental Relations will work closely with King County, the Port of Seattle, WSDOT, the Puget Sound Regional Council and the Puget Sound Clean Air Agency to raise support for regional road pricing and to address any legislative barriers to tolling on state and federal highways.

How we will measure our progress

- Early progress will be measured by the state's progress in moving beyond pilot programs and studies. A key barometer will be whether road pricing systems are included in the planning for SR-520 and the Alaskan Way Viaduct.

Action #4: Implement a New Commercial Parking Tax

The problem, the solution, the benefits

Incentives are a powerful tool to shape the way we use–or conserve– energy. More expensive parking motivates people to choose alternative transportation, or to limit the number of trips that require paid parking.

While an increased parking tax provides the incentive to drive less, the other side of the equation is just as important – having viable transportation options available. A parking tax serves as a funding source to help make transit a viable alternative to traveling in single-occupancy vehicles.

New actions and investments: the City is phasing in a 10 percent commercial parking tax

- In August 2006, Mayor Nickels and the Seattle City Council approved a citywide commercial parking tax, which will be implemented in stages over three years. A 5 percent tax begins in July 2007, rising to 7.5 percent in July 2008 and 10 percent in July 2009.

How we will measure our progress

- Percentage of trips made using modes of transportation other than single occupancy vehicles.
- Vehicle miles traveled in Seattle.

Action #5: Expand Efforts to Create Compact, Green Urban Neighborhoods

The problem, the solution, the benefits

Increased urban density is one of the most effective strategies to increase energy efficiency; multi-family and high rise office buildings use far less energy per occupant than their stand-alone counterparts. Public transportation becomes far more frequent and cost effective in high density areas. An example is New York City, which is often rated as the greenest city in the United States. On a per capita basis, New York is the most energy efficient city with the lowest rate of car ownership.

Already the benefits of Seattle's move to more compact, urban living are apparent. According to the Puget Sound Regional Council, residents of the region's most compact neighborhoods drive 28 percent less than their counterparts in suburban areas. In a study conducted for King County, the Center for Clean Air Policy found that communities can cut carbon dioxide emissions 33 percent by increasing the number of dwellings per acre from four to 20. And there are many studies demonstrating that increased density – the combination of housing, retail, entertainment and employment – results in more walking, which translates into reduced obesity rates and improved health.

Given that Seattle is expected to grow significantly in the coming decades, there is a real need – and opportunity – to build walkable, transit-friendly neighborhoods across the city. Land-use changes to encourage such development are already under way, with height limits raised in some neighborhoods, allowing more residential and business development.

New City investments and actions to develop compact, livable neighborhoods

- The City's new downtown zoning rules allow increased height limits and greater development flexibility in exchange for incorporating energy-efficient green building practices and for providing funding for affordable housing and other public amenities.

- The mayor's Neighborhood Business District Strategy (NBDS) – scheduled to be considered by Council in December 2006 – includes zoning changes for the South Lake Union, Capitol Hill, University District and First Hill urban centers to encourage more compact development. It also includes changes to streamline regulations in all urban villages.

- The mayor's Center City Strategy is being implemented to accommodate 50,000 new jobs and 22,000 new homes Downtown and in nine close-in neighborhoods by 2024.

- As part of the NBDS, the City is revising policies and regulations to ensure "transit oriented development" -- compact, mixed use developments in which walking, biking and transit access are safe and easy -- occurs at and around light rail stations.

- The multi-family code is being revised to encourage housing close to transit and commercial areas.

- Within the year, the Department of Planning and Development will be proposing new regulations to ensure new development includes open space, trees and other amenities. Options include:

    - an open-space impact fee on new development in Seattle's urban centers to help fund public open space;
    - adopting the "Seattle Green Factor" in neighborhood commercial and multi-family zones -- a menu-based system of development incentives and regulations that requires more trees and vegetation per parcel; and
    - strengthening the City's tree protection ordinance and providing incentives for private property owners to plant more trees and greenery.

How we will measure our progress

- Progress in increasing density will be measured by the percentage of people who live in pedestrian and transit oriented neighborhoods.
- Per capita residential energy use.
- Percentage of trips made using modes of transportation other than single occupancy vehicles.
- Tree canopy coverage.

Action #6: Improve the Average Fuel Efficiency of Seattle's Cars and Trucks

The problem, the solution, the benefits

Getting more miles per gallon out of our cars and trucks and reducing unnecessary trips is essential to reducing greenhouse gas emissions. Since 1987, the average fuel efficiency of cars nationally has steadily declined due to a number of factors: heavier vehicles, more horsepower, federal fuel efficiency standards that have remained essentially unchanged for two decades and higher speed limits. At the same time, the quality of vehicles has improved -- thus the bigger, heavier, less fuel-efficient vehicles purchased in the last decade last longer and are likely to be in use for many years to come.

Fortunately, there are positive signs of change. In 2009, new cars sold in Washington will be required to meet new standards that restrict CO2 emissions. And rising oil prices are increasing the demand for more fuel efficient vehicles and prompting more people to consider how – and whether – they drive. Our challenge is to accelerate these changes in Seattle by encouraging "smart driving" – less idling, more moderate speeds, proper tire pressure, bundling errands to-

gether. Actions such as fleet owners buying the most fuel-efficient vehicles for the job and taxi regulations being changed to reduce taxi "dead-heading" in Seattle-King County. These actions will reduce Seattle's projected GHG emissions by at least 35,600 metric tons by 2012.

Increased fuel efficiency not only reduces greenhouse gas emissions, it also reduces air pollution and saves consumers money at the gas pump. Ultimately, reducing our use of gas and diesel at a regional and national level contributes to a stronger, more sustainable economy that is less vulnerable to political upheaval in other parts of the world.

New City actions and investments to improve fuel efficiency in Seattle

- The Office of Sustainability and Environment (OSE), with other City departments and agencies such as the American Automobile Association (AAA) and the Puget Sound Clean Air Agency, will develop a comprehensive climate protection action-awareness campaign(see Action 14). It will include a "Drive Smart" component focused on fuel efficiency: what to look for when purchasing a car, maintenance and driving tips to increase mileage, and tips for driving less. The campaign will include a variety of media, messages, workshops and events tailored to reach specific audiences.

- OSE, partnering with Puget Sound Clean Cities Coalition and the Puget Sound Clean Air Agency, will develop and launch "Smart Fleets," a technical assistance program to reach commercial fleets. This program will feature both biofuels (see Action 7) and fuel efficiency, including benefit-cost case studies of fleets that have converted to more fuel efficient vehicles, reports on fuel saving opportunities for commercial drivers, fuel efficient technologies and any funding assistance that may be available.

- The Fleets and Facilities Department will improve and enhance its Clean, Green Fleet program. Already, the City fleet has reduced fossil fuel consumption by 12 percent since 1999 through such actions as purchasing the most fuel-efficient vehicle for the job. For example, hybrid electric cars are the standard sub-compact in the City fleet and Segways (battery operated personal mobility vehicles) are used for water meter reading, security at Seattle Center and for Seattle Police to patrol large events.

- The City will examine the use of smaller, more fuel-efficient taxicabs and offering incentives to taxicab owners to use gas-electric hybrid vehicles.

- In addition, the City will continue to work with King County, the Port of Seattle and taxi companies to explore ways of reducing the amount of taxi "deadheading" in the region.

The "Miles Per Gallon" impact - the difference between a car that gets 20 mpg and one that gets 30 mpg - is more than $2,300 over 5 years, assuming both cars use gas priced at $2.36 per gallon and are driven 12,000 miles a year.

- Alliance to Save Energy

- The Police Department will replace 20 non-pursuit vehicles with fuel efficient hybrid electric cars; the remaining 40 non-pursuit cars will be replaced with hybrids in the following four years.

- Seattle Center and the Parks Department will reduce the use of gasoline by replacing gas-powered mowers and other equipment with electric or hybrid electric models. Parks Department will also replace three gasoline trucks with more climate-friendly models, and reduce

vehicle idling by equipping five trucks with power inverts -- devices that enable equipment to run off batteries without using the truck engine.

- The Parks Department will urge visitors at 14 of its most heavily used parks to reduce unnecessary idling by installing signs in parking lots.

- Seattle Public Utilities will offer an additional $25 incentive under its electric mulching lawn mower rebate program to ensure old mowers are turned in for disposal and not used elsewhere.

How we will measure our progress

- Trends in the contribution of gasoline to Seattle's climate pollution levels via updates to the greenhouse gas inventory.
- Regular survey tracking questions of drivers to measure behavior changes and levels of awareness.
- Seattle gasoline and diesel sales data, if available. (Currently, fuel sales data are available only at the statewide level.)
- Vehicle miles traveled in Seattle.

Action #7: Substantially Increase the Use of Biofuels

The problem, the solution, the benefits

Heavy duty diesel trucks on the road today average less than 8 miles per gallon, and they typically travel as many as a million miles before they are retired. Every gallon of diesel fuel burned adds more than 22 pounds of CO2 to the atmosphere. Substituting at least part of the diesel use with biodiesel presents and enormous opportunity for cutting climate pollution. Similarly, gasoline fueled cars and light duty trucks using ethanol blends produce fewer greenhouse gas emissions per mile driven. Accelerating the use of biofuels in Seattle is projected to cut an estimated 165,000 metric tons of CO2 by 2012.

- *Biodiesel* is a renewable non-petroleum fuel produced from crops such as soy and canola, or used cooking oils and unwanted animal fats. On a life cycle basis, biodiesel produces 78 percent less climate polluting carbon dioxide than petroleum diesel. Biodiesel can be blended at any level with petroleum diesel but is most commonly found at a ratio of 20 percent biodiesel to 80 percent petroleum diesel (B20).

- *Ethanol* is a renewable fuel currently distilled primarily from corn. The ethanol content in gasoline can be as high as 10 percent without needing to modify standard engines. Many automobile manufacturers make "flex-fuel" versions of their standard gasoline-powered vehicles which can use E85 (85 percent ethanol, 15 percent gasoline) and which cuts GHG emissions per gallon by as much as 64 percent compared to gasoline (if it is cellulosic ethanol.)

Already, the use of biodiesel is expanding rapidly in Seattle. It costs about the same as petroleum diesel and is becoming more widely available at retail and bulk fueling stations. In 2008, state law will require that biodiesel will represent at least two percent by volume of diesel sales.

For E85, the main barrier is fuel availability; flex-fuel cars cost no more than standard cars and there are more than 110,000 in use in Washington today. But nearly all use regular gas. Cellulosic ethanol development is underway and experts predict it may be available on a limited basis by 2008. Substantial state tax incentives exist to encourage in-state production facilities, distribution services and retail sales facilities for biodiesel and ethanol fuels. Developing more in-state production facilities will reduce the need to transport biofuels from other states thereby increasing climate benefits.

The switch to biofuels, particularly biodiesel, will also make big improvements in air quality. Petroleum diesel is currently the major source of the high rate of air toxics and particulate matter in Puget Sound. Reducing them will make our air cleaner and healthier.

New City investments and actions to accelerate the use of biofuels

- The Department of Fleets and Facilities will, following testing, increase the percentage of biodiesel blend used in City vehicles and equipment from B20 to as much as B40. Already, nearly all of the City's diesel vehicles are using B20.

- The climate protection action-awareness campaign (Action 14) will emphasize and promote biofuels as a climate solution.

- Seattle Center will install a 500-gallon biodiesel tank, allowing more equipment such as pressure washers and generators to be converted to biodiesel.

- OSE will work with other departments to identify and analyze potential additional City uses of biodiesel such as using biodiesel in emergency generators or requiring contractors to use B20 on City construction jobs.

- OSE will work with King County, the Puget Sound Clean Air Agency and the Puget Sound Clean Cities Coalition to develop and implement a mechanism to track biofuels sales in the Puget Sound region.

- E85 advocates such as the Puget Sound Clean Air Agency are looking to the state legislature for new incentives to create the supply and demand for E85. The City will actively support state legislation that is consistent with its legislative agenda and furthers the use and production of biofuels in Washington.

- The City is the major funder of the Puget Sound Clean Cities Coalition, a public/private partnership that is promoting policies and practices that increase the use of biofuels in transportation.

Actions by others in Seattle that will make a difference

- King County is the largest user of biodiesel in the region, with half of Metro's bus fleet using B20. As supplies become available, the County plans for all its on-road vehicles to be converted to B20.

- A coalition of air quality, labor and environmental interests is introducing state legislation in the 2007 session to further increase the use and production of biofuels in Washington.

- Puget Sound Clean Air Agency is producing a biodiesel users guide in early 2007.

- Washington State Ferries and Puget Sound Clean Air Agency will complete a study of specifications for marine use of biodiesel that will allow some ferry runs to return to using B20.

- The Port of Seattle requires contractors to use biodiesel for large projects and uses B99 for its own uses.

How we will measure our progress

- Number of biofuel stations in Seattle.
- Gallons of biodiesel sold (if there are data available).

Action #8: Significantly Reduce Emissions from Diesel Trucks, Trains and Ships

The problem, the solution, the benefits

The Port of Seattle is the fastest growing container port in North America. The Port has also substantially increased its capacity to host the growing number of Alaska-bound cruise ships. This growth means Seattle is seeing an increase in diesel-emitting freight traffic from trucks, trains, and ships that carry goods, services, and people to and from Seattle. Ships are a particularly significant source of diesel pollution.

Consequently, diesel emissions are a growing source of Seattle's climate pollution. In addition, scientists are concluding that black soot caused in part by diesel emissions is adding to global warming by increasing the melting rates of glaciers and snowfields.

Reducing diesel emissions from freight transportation requires several strategies:

- Decreasing congestion along freight corridors to improve freight travel times;

- Running freight on cleaner fuels, where feasible;

- Reducing unnecessary idling by ships, trains and trucks; and

- Improving truck fuel efficiency.

Each of these strategies will contribute to substantial reductions in greenhouse gas emissions. Reduced emissions also help mitigate one of Seattle's more pressing public health issues: due primarily to diesel emissions, we have one of the highest rates of air toxics in the country, leading to increased cancer risks in our community.

A number of recent initiatives are beginning to slow the rate of increased freight-related emissions:

- Thanks, in part, to funding assistance from Seattle City Light's greenhouse gas mitigation program, Seattle is just one of two North American Ports with shore power capability for cruise ships. This allows them to reduce emissions by about 30 percent by shutting off diesel engines.

- Port cargo cranes have all been converted from diesel to electric.

- The Port of Seattle (along with the Ports of Everett and Tacoma) is conducting a comprehensive inventory of maritime emissions that will be released in early 2007.

- The Port is taking steps to reduce truck idling. It has switched to using B99 (99 percent biodiesel, 1 percent petroleum diesel) in its diesel equipment. And it has successfully converted a number of its tenants to biofuels.

- The recently formed Puget Sound Maritime Forum, a public private partnership of the region's Ports, Air Agencies and others, is collaborating on adopting technologies and practices that reduce diesel emissions.

New City actions and investments to reduce diesel emissions

- OSE, partnering with the Puget Sound Clean Air Agency and the Puget Sound Clean Cities Coalition, will implement "Smart Fleets" to reduce emissions from commercial fleets. (See Action 6.)

- Seattle City Light will work with the Port of Seattle to expand the Port's capacity to provide onshore power to cruise and container ships.

- *Bridging the Gap*, the levy proposal to invest in Seattle's transportation infrastructure, would make numerous investments in freight mobility, including approximately $1 million in 2007 and $4 million in 2008 to provide critical freight infrastructure improvements near the Port. Projects include the Spokane Street Viaduct and Lander Street Bridge.

- The Seattle Department of Transportation, also through *Bridging the Gap*, will adjust traffic signals to improve the flow of freight traffic.

How we will measure our progress

- Tracking diesel emissions via regular updates to the community wide inventory of greenhouse gas emissions.

Action #9: Maintain Seattle City Light at Zero Net Greenhouse Gas Emissions and Meet Load Growth Through Conservation and Renewable Energy Resources

In most communities in our country, the electric utility is a major source of greenhouse gas emissions because it burns coal or gas to produce electricity. In Seattle, by contrast, the City-owned electric utility is a point of climate protection pride. That's because Seattle City Light is the

only electric utility in the country to have achieved zero net greenhouse gas emissions. Continuing this policy yields the single largest greenhouse gas reduction in the plan–about 200,000 metric tons.

The utility starts with a low baseline of greenhouse gas emissions because clean hydroelectricity produces approximately 90 percent of City Light's power. To reach its goal of zero net greenhouse gas emissions, the utility's first priority is to acquire cost-effective energy conservation and renewable energy and then, using stringent criteria and third-party verification, to purchase offsets for the remaining emissions. (An "offset" is a project that compensates for some or all of an organization's global warming pollution by avoiding or storing an equal amount of emissions outside of its own operations.) City Light offsets approximately 200,000 metric tons of greenhouse gas emissions each year and spends about $2 per customer per year to meet this commitment.

Although City Light electricity is climate neutral, conservation remains a top priority because it contributes to the utility's ongoing ability to meet the zero net GHG emissions target. The more the utility relies on cost-effective conservation to meet demand, the fewer greenhouse gas emissions it has to offset – a win for climate protection and a win for City Light rate payers.

Actions to meet the City's commitment to conservation, renewables and climate neutral electricity

- Seattle City Light's mitigation program has already purchased enough offsets for all of 2006 and part of 2007. It will purchase additional offsets as necessary to achieve zero net greenhouse gas emissions.

- City Light will acquire 7.25 average megawatts of energy conservation in 2007 and at least that for 2008.

- City Light will continue to buy about 3 percent of its power needs with renewable wind energy through its contract with Stateline Wind.

- As part of the climate protection action-awareness campaign (see Action 14) City Light, Puget Sound Energy and the Office of Sustainability and Environment (OSE) will collaborate on a campaign that promotes energy conservation for both natural gas and electricity for all users: homes, businesses and public institutions. Links to new federal tax incentives for home and business conservation measures will be included in the promotional materials.

How we will measure our progress

- The key performance indicator is whether or not City Light meets the zero net green-house gas emissions target each year.
- The supporting performance indicator is per capita residential electric energy use in Seattle.

Action #10: Substantially Increase Natural Gas Conservation

The problem, the solution, the benefits

Natural gas is one of the cleanest burning fuels for heating and cooking but, like all fossil fuels, it produces greenhouse gas emissions. The solution is to use it more efficiently.

Opportunities and incentives abound for increasing natural gas efficiency. Puget Sound Energy (PSE), the gas utility serving Seattle, offers homes and businesses grants and rebates to help pay for gas conservation measures such as high efficiency appliances, furnaces, industrial processes and home weatherization. Seattle Public Utilities' water conservation program provides incentives for appliances and equipment that use hot water more efficiently. Substantial federal tax incentives are available for energy conservation investments. And, many conservation measures don't require any spending – shorter showers, fully loaded dish washers and keeping the door closed during the heating season.

In May, 2005 the state legislature passed energy efficiency standards for 12 appliances, including commercial clothes washers and natural gas unit heaters that reduce greenhouse gas emissions in Seattle by 9,500 tons by 2012.

The benefits of increased energy efficiency go well beyond climate protection. Energy efficiency helps pay for itself by lowering utility bills. It extends energy supplies. As the most cost-effective energy resource for a utility, investing in energy conservation helps keep rates down for everyone, which is good for our local economy.

We project that by accelerating natural gas conservation in businesses, public institutions and homes, greenhouse gas emissions in Seattle can be reduced by about 66,000 tons by 2012. The primary barrier is that, while the region has nearly three decades of experience with electric energy conservation, there just isn't as much awareness and experience with gas conservation. For example, there has never been a region-wide weatherization program for gas heated homes and since about half of Seattle homes heat with gas, there are likely many cost effective conservation opportunities in these homes.

New City actions and investments to accelerate natural gas conservation in Seattle

- In 2007, Seattle Public Utilities and City Light will implement a comprehensive showerhead and faucet aerator program for all residential customers. Program materials will feature greenhouse gas reductions as one of many benefits.

- Seattle Parks and Recreation will install covers on the Helene Madison and Ballard swimming pools, which are heated by natural gas, in 2007. In addition, in partnership with PSE, Parks is establishing a Resource Conservation program to identify and implement cost-effective energy conservation measures.

- The Fleets and Facilities Department will increase its focus on energy efficiency in city facilities, hiring a dedicated energy specialist and adding resources for implementing cost-effective conservation measures.

- City Light's energy conservation program promotional materials and messages will feature greenhouse gas reductions as one of many benefits of energy efficiency. In addition, the materials will urge customers who use gas for heating or cooking to contact PSE's conservation program.

- The Department of Planning and Development will increase the Green Building Program's focus on energy efficiency–particularly natural gas–and associated greenhouse gas reduction benefits by offering targeted technical assistance, incentives, promotion of utility conservation programs, and making case studies available.

- As part of the communications program, (see Action 14) PSE, City Light, and the Office of Sustainability and Environment will collaborate on a campaign that promotes energy conservation for both natural gas and electricity.

- Heat pump hot water heaters (HPHWH) are substantially more energy efficient than even the most efficient conventional water heaters. They are, however, more expensive and complicated to install. In 2008, OSE will work with City Light and PSE to report on HPHWHs and their potential for GHG reduction in Seattle.

How we will measure our progress

- Per capita residential energy use.
- Regular updates to the greenhouse gas inventory.

Action #11: Strengthen the State Residential Energy Code

The problem, the solutions, the benefits

The City has long been a leader in energy code development for commercial buildings, ensuring that the code stays current with changes in building technology and captures additional opportunities to increase energy efficiency. But the *residential* energy code–which governs single family housing, apartments, condominiums and hotel and motel guestrooms–is set at the state level by the State Building Code Council. To make improvements to the residential energy code, the City must work with the Council and other interested parties in a process that occurs once every three years. The 2006 revision cycle is under way now and will be complete in November 2006.

The climate benefits of energy code improvements are substantial and, because the energy code is statewide, Seattle's efforts in this arena will reverberate beyond the Puget Sound region.

Energy codes "lock-in" energy efficiency at the time of construction and homeowners and tenants save money on their utility bills – adding to long-term housing affordability.

When cost effective energy code changes are not adopted, utilities and their ratepayers ultimately pay more either for energy conservation retrofits or for a new source of energy; making housing energy efficient when it's constructed is far more cost effective than remodeling later.

City actions to achieve a strengthened energy code

- As part of the State Building Council's 2006 energy code revision cycle, the Department of Planning and Development (DPD) and Seattle City Light submitted several proposed amendments to the residential energy code that will improve energy efficiency cost effectively. The amendments were adopted into the rule making process and will be considered during the public comment period. The proposals are:

    - Increasing insulation levels in vaulted ceilings;
    - Requiring more energy efficient windows ("Class 35") that are standard practice in about 85 percent of construction already
    - Restricting developers' ability to take credit for less than 15 percent window area as a means to avoid more insulation in floors and/or walls;
    - Requiring energy efficient lighting (compact fluorescents) for exterior lighting or regular lights with daylight and motion sensors; and
    - Requiring linear fluorescent lights to be high efficiency fluorescent fixtures (T-8's).

- The public comment period for the energy code revision process is in October 2006. Several city departments–DPD, the Office of Sustainability and Environment, the Office of Intergovernmental Relations and Seattle City Light–will be working with the State Building Code Council members and staff and others to urge adoption of the proposed amendments.

Progress on this action will be measured by:

- Tracking per capita residential energy use (both gas and electric).
- Updates to the greenhouse gas emissions inventory.

Action #12: Reduce Seattle Steam's Use of Natural Gas

Seattle Steam Co. supplies steam for heat and hot water to175 downtown Seattle customers by burning natural gas in addition to some petroleum diesel in its two boilers. Converting one of its boilers from fossil fuel to biofuel in the form of urban wood waste would avoid approximately 50,000 tons per year of GHG emissions.

Converting from natural gas to burning wood is a climate protection measure because the natural cycle of vegetation is to absorb CO2 when growing and emit CO2 when decaying; while burning vegetation accelerates the process, it is not a new source of CO2.

The City's role in this project is limited to permit review and compliance. Both the City and the Puget Sound Clean Air Agency have issued the necessary permits, and as of this writing the project is undergoing value engineering. If bids are within budget, the project schedule calls for completion by June 2007.

How we will measure our progress

- Monitor project status.
- Updates to the greenhouse gas emissions inventory.

Action#13: Continue the City of Seattle's strong leadership example

The problem, the solution, the benefits

Having already cut its own greenhouse gas emissions by more than 60 percent and committing the resources and leadership to meet the Kyoto goal of 7 percent reduction by 2012, the City is widely recognized as a model in climate protection. Many effective programs already are in place to reduce the City's emissions, including City Light's energy conservation program, Seattle Public Utilities' waste reduction and recycling programs, the Department of Planning and Development's Green Building Program and the Clean, Green Fleet program at the Department of Fleets and Facilities.

Stabilizing the global climate, of course, requires far more than meeting the Kyoto targets. Consequently, the City must continue to lead the way--continually looking to further reduce emissions and generate the experience and best practices to promote action by others.

"America has the technology and resources to meet all its energy needs while safeguarding the earth's climate. The urgent question now is, 'Do we have the will?' At least one city does, and I'm proud to live in it."

- Denis Hayes, International Chair of Earth Day and Seattle Green Ribbon Commission Co-chair

That "walk-the-talk" approach is evident in the success of the Seattle-led US Mayors Climate Protection Agreement. Seattle's demonstrated success in climate protection–proving that emissions can be cut while a city prospers–has spurred hundreds of other cities to commit to strive to meet the Kyoto target in their own communities. The City will continue to build on its commitment by testing and implementing cost effective ways to reduce its own climate pollution while also increasing its efforts to promote community-wide emission reductions.

This commitment is made recognizing that, as always, City resources are limited. By focusing our investments on actions that deliver multiple benefits such as cost savings, cleaner air and the ability for the City to attract and retain new residents and businesses, we don't have to choose between prosperity and climate protection. By virtue of our leadership role, City actions have multiplier effects through our many partnerships, including the Puget Sound Clear Air Agency, the U.S. Conference of Mayors, and ICLEI-Local Governments for Sustainability.

New leadership investments and actions the City will take

- All City employees will be encouraged and inspired to take action – on the job and at home – to reduce greenhouse gas emissions through an employee outreach campaign led by the Office of Sustainability and Environment (OSE). (See Action 14.)

- The City will fully mitigate all business-related air travel by City employees beginning in 2007, by purchasing carbon-offset projects annually.

- As of January 1, 2007, the use of climate-friendly cement using blast-furnace slag will be included in the City's contract specifications, and the City will look for opportunities to further increase its use.

- A newly-created Department of Executive Administration Green Team will assess and, where appropriate, promote the purchase and use of other climate-friendly products such as super-efficient "80-plus" computers and servers.

- OSE and the Department of Finance will work with the Seattle City Employees Retirement System to explore options for climate-friendly investing that are consistent with State law governing the System's investments. This may include actions such as assessing both the risks to City investments posed by climate disruption and the opportunities to invest in climate solutions; asking companies in the City's existing investment portfolio to disclose climate risk information through reporting mechanisms such as the Carbon Disclosure Project or Global Reporting Initiative; and joining the Investor Network on Climate Risk.

- Seattle Public Utilities, the City's second-largest department, will complete a greenhouse gas emissions inventory and develop an action plan specific to its four lines-of-business: water supply; drainage; wastewater, and solid waste management.

- OSE and the Department of Neighborhoods will lead an interdepartmental effort to, by the end of 2007, develop recommendations on how the City can support local sustainable agriculture as a climate protection action.

HHow we will measure our progress

- Avoided greenhouse gas emissions from Seattle's recycling program.
- Updates to the inventory of the City's corporate greenhouse gas emissions, i.e., those emissions the City is directly responsible for in its operations and facilities.

Action #14: Mobilize the Entire Community

The problem, the solution, the benefits

A big piece of the climate protection puzzle lies at the feet–or more precisely, the gas pedals, light switches and thermostats–of individuals. While it's true that the Seattle area alone cannot solve the global climate crisis, we have shown that we can serve as a model for others to follow. And we have a responsibility to do so. The problem is that most individuals do not yet know what actions they can and should take to be a part of the solution.

The time is ripe to change that. A series of recent nationwide polls demonstrates enormous awareness of global warming as a problem. Fifty eight percent of respondents to a recent Gallup survey believe climate change has already begun and 88 percent in a 2006 ABC News/Time Magazine poll believe it will threaten future generations. A national poll completed in August 2006 shows sizeable majorities link climate change to recent severe weather events, from declining snow pack to hurricanes to wildfires. And an Environmental Defense poll done in April 2006 shows 59 percent think their individual actions can help.

The Office of Sustainability and Environment (OSE) will lead City departments and partners including King County Metro, Climate Solutions, Sound Transit, Puget Sound Energy, Port of Seattle, AAA Washington, Puget Sound Clean Air Agency and others, in developing and launching an action-awareness campaign for the Seattle area to connect a motivated public to the climate protections actions they can take, from smarter driving habits and turning down the thermostat to recycling and using less hot water.

The City has had demonstrated success in promoting conservation in the past. Seattle Public Utilities' successful water conservation campaigns, combined with water saving technologies, have resulted in water consumption that today is below levels of the mid 1970s, despite a 25 percent increase in population. Seattle City Light's conservation program, begun in 1977, has saved more than enough electricity to power three cities the size of Seattle for a year.

The benefits to a downward shift in our use of fossil fuels will be substantial reductions in greenhouse gas emissions, cleaner air, healthier residents and significant cost savings for residents and businesses through reduced energy consumption. Beyond these direct benefits, we all will benefit greatly from a public fully-engaged and eager to press for strong climate protection policies from government and climate-friendly products and practices from business. Such engagement is the lynchpin that will make the broader Seattle Climate Action Plan successful.

New City actions and investments to mobilize the community

- The City will launch a series of radio ads in early October offering tips for reducing emissions to residents and businesses.

- In early 2007, the City and its partners will launch a sustained, large-scale, climate protection action-awareness campaign to make Seattle-area residents, public institutions and businesses aware of the link between their everyday energy use and the climate crisis. The campaign, which will employ a variety of media, will use that awareness to stimulate positive actions by individuals and organizations that reduce the region's emissions of greenhouse gases. It will tie together existing utility conservation, public transportation and trip-reduction, car- and van-pooling, private car sharing, and energy-efficient building programs to boost awareness and usage through a variety of means: a web-site, other media and direct communication through utility bills, Neighborhood Service Centers and other City programs.

- The Department of Neighborhoods will launch a $75,000 Neighborhood Climate Protection Fund to promote and help finance neighborhood-based climate protection projects such as local biodiesel cooperatives, tool- and car-sharing programs, anti-idling campaigns and community energy conservation actions.

- OSE will partner with the Port of Seattle in 2007 to develop a program at SeaTac Airport to encourage air travelers to offset the climate-pollution emissions of their flights.

- OSE will partner with the Puget Sound Clean Air Agency to bring a new educational program, "Kids for Climate Protection," to Seattle schools.

How we will measure our progress

- Monitoring data on growth of programs promoted by the campaign; also monitoring of issue-branded web site traffic.
- Periodic polling to test awareness and behavior, compared to baseline surveys to be performed prior to campaign launch.
- Regular updates to the inventory of greenhouse gas emissions.

Action #15: Create the Seattle Climate Partnership

The problem, the solution, the benefits

No single sector of the community – government, residents or business – will get us to and beyond the goal of reducing emissions by 7 percent by 2012; it will require participation by everyone. Fortunately, Seattle's businesses and other organizations have a history of visionary leadership and have already shown their eagerness to step up to the climate challenge.

Large organizations – business, industry and public institutions – are uniquely positioned to tackle climate change by directly reducing greenhouse gas emissions in their own operations and by promoting reductions by their employees, vendors and customers.

To mobilize the area's public and private sectors to individually and collectively address climate change, the City has launched the Seattle Climate Partnership. The Partnership is a voluntary pact among employers to reduce their own emissions and work together to help meet community-wide reduction goals. Already, 20 institutions have joined the Partnership – a dynamic and growing network of climate-friendly institutions supported by a strong program of technical assistance, information sharing and recognition.

With the City of Seattle's leadership and participation, 11 other founding partners are developing the Partnership:

REI
Starbucks Coffee Company
Group Health Cooperative
Lafarge North America
Port of Seattle
University of Washington
King County
Urban Visions
Mithun
Garvey Schubert Barer Law Firm
Shoreline Community College

Investments and actions to implement the Seattle Climate Partnership

- Engaging a large percentage of employers will take a deliberate, strategic and sustained effort. With staff support from the City's Office of Sustainability and Environment (OSE), the founding partners have developed a Partnership Agreement and initiated a recruitment effort that has already gained the participation of several other Seattle organizations including Fred Hutchinson Cancer Research Center, HomeStreet Bank, Imperium Renewables (formerly Seattle Biodiesel), Woodland Park Zoo, Seattle University, the Seattle Housing Authority, Waterstone Brands and Evergreen Construction.

- During 2007, the Partnership members will, with staff support from OSE:

    - Develop and implement a recruitment strategy to meet the Partnership's participation goals of 100 employers by the end of 2007 and 200 by the end of 2008, targeting the largest employers;
    - Develop and implement a technical assistance program for partners, including: a resource guide; a web site for sharing ideas, experiences, best practices and success stories; training workshops; and direct technical support from a team of experts in climate solutions, such as energy conservation and commute trip reduction;

- Host an annual event with the Mayor and other civic leaders to recognize and promote the Partnership's climate protection accomplishments, thereby increasing networking and recruitment of new Partners.

- Members have concluded that the Partnership's credibility and effectiveness will be enhanced if it is ultimately housed in a non-governmental organization. By late 2006, the Partnership, with staff support from OSE, will develop a five-year business and funding plan with a target date of December 2007 for selecting a non-profit home for the Partnership.

How we will measure the progress of the Partnership in reducing emissions

- The founding partners will agree on a set of performance indicators as part of the five-year business plan for the Partnership. These indicators might include the number of Seattle-area employers participating in the Partnership; and the tons of greenhouse gas emissions avoided or reduced by members of the Partnership.

Action #16: Leverage regional, state and national climate solutions

The problem, the solution, the benefits

Climate disruption is a global challenge that requires strong action in all sectors of our society and by all levels of government. Seattle cannot solve the problem by itself, of course. But as Washington's largest city and economic engine, we are in a good position to help shape policy and promote action by neighboring jurisdictions, in Washington state and at the federal level, too. Strong climate protection policies and programs are urgently needed at all levels of government, both to demonstrate leadership and to bring about the significant emissions reductions that are needed to stabilize the climate.

We are fortunate to be part of a regional community that shares a commitment to climate protection:

- Both the Puget Sound Clean Air Agency and King County have strong climate protection programs.

- ICLEI-Local Governments for Sustainability, whose Cities for Climate Protection Campaign has mobilized local action on global warming for years, now has a new regional capacity center in Seattle.

- Seattle participates in a number of regional and statewide government forums that have a direct interest in strong climate protection policy, including the Association of Washington Cities, Puget Sound Regional Council, and the regular meetings of the King County Mayors, statewide Big City Mayors and King County City Managers.

- There are a number of well-respected and effective environmental, good government and labor groups – including Climate Solutions, the Sierra Club/Cascade Chapter, the US Green Building Council/Cascade Chapter and the King County Labor Council – that have adopted climate protection as priority, and have a strong presence in the state Legislature.

- Governor Gregoire and the state legislature have passed several very important pieces of climate protection legislation in recent years, including the clean car rules, appliance efficiency standards, and biofuels standards, and will continue to look for ways to address this issue in future sessions.

In addition, more than 300 mayors across the country – including 19 from Washington – have signed onto the Seattle-initiated US Mayors Climate Protection Agreement, pledging to take action to reduce global warming pollution in their own communities and support a national cap-and-trade system for greenhouse gas emissions. These mayors represent more than 50 million people in 46 different states plus the District of Columbia, and constitute an influential – and growing – coalition of municipal leaders who are taking local action on global warming and calling for stronger national action.

By building on these and other relationships and accomplishments, the City is well positioned to promote broader solutions, at the local and state level.

City investments and actions to leverage regional, state and national action

- The Office of Sustainability and Environment and the Office of Intergovernmental Relations will continue to work closely with the Clean Air Agency, ICLEI, King County, and the King County Mayors/City Managers group to promote strong climate protection action by local jurisdictions throughout the Puget Sound region.

- Along with King County and the Puget Sound Clean Air Agency, we will continue to work with the Puget Sound Regional Council to increase funding, through programs such as the Congestion Mitigation and Air Quality (CMAQ) Improvement Program, for climate-friendly transportation, including expanded public transit and freight mobility improvements that reduce diesel emissions.

- Strongly advocate for a Sound Transit/Regional Transportation Investment District (RTID) proposal for the November 2007 ballot that emphasizes increased funding for public transit and transit-related mitigation for roads projects.

- We will strongly advocate for a state-wide cap-and-trade system for Washington state, and ask the State to consider joining the cap-and-trade system now under development by the State of California.

- We will strongly advocate for state and national policies that: increase investment in public transit and other infrastructure that makes alternatives to motor vehicles more convenient and affordable; increase the fuel efficiency of motor vehicles as well as development and use of alternative fuels; encourage energy utilities to fully support and implement cost-effective conservation and meet new demand with renewable energy sources; and other measures to reduce our state and national impact on the global climate.

- As co-chair of the newly created US Mayors Council on Climate Protection, Mayor Nickels will: continue to lead efforts to increase participation in the US Mayors Climate Protection Agreement (MCPA); lend his guidance and assistance to the US Conference of Mayors and ICLEI Local Governments for Sustainability as they help cities implement the Agreement; seek additional partnerships with other organizations working to implement solutions, and work with the US Conference of Mayors to increase US mayors' participation in, and influence on, national climate policy.

- The City will partner with the newly created Clinton Climate Initiative to accelerate the greenhouse gas emission reduction efforts of cities around the US and abroad, and to ensure participation by MCPA signatories in purchasing collaboratives that will increase the market for (and lower the costs of) climate-friendly products and technologies such as plug-in hybrid vehicles and heat pump water heaters.

How we will measure our progress

- Number of mayors signed onto the US Mayors Climate Protection Agreement.
- Number of local governments adopting Green Fleet Plans and other climate-friendly policies and programs.
- Adoption of a strong climate policy framework (as outlined above) by both the State of Washington and the federal Government.

Action #17: Directing More Resources to the Challenge

Upping our investment

The City has been investing in climate solutions for many years. For example, beginning in April 2000, Seattle City Light increased its investments in conservation, renewable energy sources, and carbon offset projects to achieve its goal of zero net emissions of greenhouse gases. Under this Action Plan, the utility will continue to make the investments necessary to sustain that goal. Similarly, through its Green Building Program (initiated in February 2000) and the Clean, Green Fleet Program (launched in April 2002), the City has already invested heavily in energy-efficient, climate-friendly buildings and vehicles.

This Action Plan builds on these accomplishments. It calls for more progress within existing resources, for example by better integrating climate impacts and solutions into City purchasing and investment decisions. In addition, the 2007-2008 Proposed Budget that Mayor Nickels submitted to the City Council in September 2006 proposes additional climate protection investments of about $1.8 million in 2007 and about $1.2 million in 2008. In 2007, these new investments include the following:

- About $375,000 to buy more climate-friendly vehicles and landscaping equipment, and to install a biodiesel tank at Seattle Center;

- $530,000 to identify and implement cost-effective energy-efficiency measures in City facilities, with a strong focus on natural gas conservation;

- $200,000 to initiate an extensive community awareness and action campaign, including $75,000 to fund community-based climate solutions through the Neighborhood Matching Fund;

- $100,000 to promote alternatives to single-occupant vehicle travel in partnership with the Urban Mobility Group, Flexcar and others;

- $100,000 for technical and policy analysis in support the City's efforts to develop and implement and regional road-pricing systems;

- $50,000 to initiate a "Smart Fleets" program to increase fuel efficiency and use of biofuels by commercial fleet operators;

- $50,000 to provide technical support to the Seattle Climate Partnership, an effort to accelerate greenhouse gas emissions reduction efforts by Seattle-area employers; and

- $10,000 to fully mitigate global warming pollution from business-related air travel by City employees by investing in "carbon offset" projects.

In addition, if passed, "*Bridging the Gap*," the transportation funding proposal that will be on the November 2006 ballot, will contribute significantly to implementing this Action Plan. Specifically, it includes approximately:

- $4.4 million in both 2007 and 2008 to expand bus service in Seattle, increase bus rapid transit, and improve transit efficiency in key bus corridors;

- $500,000 in 2008 to begin development of King Street Station as a multimodal transit hub;

- $7.5 million in both 2007 and 2008 to increase bike trails and lanes, improve sidewalks and walkways and pedestrian street crossings in high-use areas, and develop and begin implementing the city's first Pedestrian Master Plan – a comprehensive strategy for making walking in Seattle easier and safer;

- $2 million in 2007 and $3 million in 2008 to repair Seattle's existing pedestrian infrastructure, its sidewalks, trails, walkways, and stairways;

- $1 million in 2007 and $3.7 million in 2008 for freight infrastructure improvements, many of which will decrease emissions by improving truck travel times as they move through the city;

- $750,000 to maintain street trees and plant new trees.

Reaping diverse dividends

Investments in climate protection will produce benefits that go well beyond reducing global warming pollution. For example, reducing motor vehicle emissions by increasing transit, biking and walking opportunities significantly improves air quality and public health. And increasing the use of biodiesel and improving freight mobility reduces diesel emissions – the number one source of toxic air pollution in our community.

Many actions that reduce global warming pollution – in particular, energy and fuel use efficiency – save money over time, especially in this era of rising energy prices. Energy conservation lowers the costs of powering our homes and businesses; fuel efficiency saves us money at the pump. According to the American Council for an Energy-Efficient Economy, the U.S. could save $75 billion a year by increasing energy efficiency in buildings by 30 percent. Similarly, according to the Union of Concerned Scientists, a 40 mile-per-gallon fuel economy standard for cars and light trucks would save consumers $16 billion annually, while reducing global warming pollution from those vehicles by 20 percent.

In addition, there is growing evidence that investing in climate solutions bolsters economic vitality by creating jobs and business opportunities. A recent study by the University of California at Berkeley (www.calclimate.berkeley.edu) concluded that the State of California's plan to achieve 1990 levels of greenhouse gas emissions by 2020 will boost California's Gross State Product by $60 billion and create 17,000 new jobs. The study, using a state-of-the-art economic forecasting model, concluded California would see the economic and employment benefits "largely because innovation and efficiency improvements – driven by climate policy – save money, allowing consumers to redirect their spending from imported energy to in-state goods and services, providing new stimulus to the California economy."

Although a similar study has not been conducted on Seattle's Climate Protection Initiative, local researchers agree that reducing the city's dependence on gasoline, diesel and natural gas will have economic benefits. According to the Seattle-based Sightline Institute, much of what we spend on oil and gas "gets immediately siphoned out of the region's economy, leaving less money to circulate locally, among the region's residents and businesses." The Institute estimates that the residents and businesses of Washington State export about $9.6 billion annually in this way.

Action #18: Monitor and Report on Progress

As the saying goes, what gets measured gets managed. A critical part of Seattle's Climate Action Plan is to measure progress in meeting the target of reducing Seattle's climate pollution by seven percent by 2012 compared to 1990 levels. As the leader of the US Mayors Climate Protection Agreement, Seattle's progress in reducing emissions, and our experience with which actions are most effective, will be of great interest to mayors and cities across the country.

The most significant measurement is to update regularly Seattle's inventory of greenhouse gas emissions and that is already underway. A report on 2005 emissions is scheduled to be completed in early 2007.

Progress will also be measured through several other important performance indicators:

- Avoided emissions from Seattle's recycling program
- Emissions from City operations and facilities
- Per capita residential energy use in Seattle (natural gas and electricity use)
- Percentage of trips made using modes of transportation other than single occupancy vehicles
- Vehicle miles traveled
- Progress in increasing density as measured by the percentage of people who live in pedestrian and transit oriented neighborhoods

The other critical element is to monitor progress on each of the action items contained in this Plan so that, as needed, program revisions and corrections are timely.

Actions to monitor and report on progress

- The Office of Sustainability and Environment (OSE) will update Seattle's greenhouse gas emissions inventory every three years using widely accepted protocols. Because we are working with so many partners on our climate protection actions, our goal is to produce an

inventory that allows Seattle's progress to be measured against the region's progress. To that end, we've convened an Ad Hoc GHG Inventory Committee consisting of key City staff and representatives from those key partners - the Port of Seattle, the Puget Sound Clean Air Agency, the Puget Sound Clean Cities Coalition and ICLEI-Local Governments for Sustainability.

- Greenhouse gas emissions from transportation sources – the major source of Seattle's climate pollution - are difficult to measure accurately because fuel sales data are collected only at the state level and don't include biodiesel sales. The Puget Sound Clean Air Agency collects regional emissions data and is considering a leadership role in collecting and providing emissions data to Seattle and other Puget Sound cities and counties. OSE will work closely with the Clean Air Agency to see if local fuel sales data can be collected and reported regularly.

- OSE will lead implementation and provide technical support for this Action Plan including convening an interdepartmental Climate Team that will coordinate, track and report on implementation progress and develop climate protection performance measures to be integrated into departments' accountability contracts with the Mayor.

- The Mayor's Urban Sustainability Advisory Panel will be responsible for overseeing the implementation of the Seattle Climate Action Plan, including providing feedback and direction in response to progress reports and updated Plans.

- OSE, with the assistance of the Interdepartmental Climate Team and the oversight of the Advisory Panel, will update the Seattle Climate Action Plan as part of the City's biennial budget process.

Seattle's Climate Action Plan: The Importance of Recycling and Urban Forestry

The 18 Actions presented in this plan reduce the levels of greenhouse gas emissions within Seattle's boundaries. Although not calculated in our target for reducing greenhouse gas emissions, the City's recycling and urban forestry programs also reduce climate pollution and are equally important parts of Seattle's climate protection initiative.

Recycling and waste management are potent strategies for reducing greenhouse gases because they save energy. Manufacturing goods from recycled materials typically requires less energy than producing goods from virgin materials. That means fewer fossil fuels are burned and less carbon dioxide is emitted. Waste prevention, recycling and composting divert organic wastes from landfills, reducing the methane that would be released if these materials decomposed in a landfill. And waste prevention and recycling paper products allows more trees to remain standing in the forest, where they can continue to remove carbon dioxide from the atmosphere.

What Seattle is doing: Seattle Public Utilities has a long history of waste reduction and recycling through a wide variety of programs and incentives, including:

- Banning recyclable paper and cardboard in commercial garbage;
- Banning recyclable paper, cardboard and glass, metal and plastic bottles in household garbage;
- Providing convenient curbside or on-site recycling collection to households as part of their solid waste collection services at no additional charge;
- Setting volume-based garbage collection fees;
- Providing convenient curbside collection of yard debris and food waste to households for a modest fee;
- Providing convenient curbside collection of yard debris and food waste to households for a modest fee;
- Encouraging waste minimization and recycling through education and outreach.

In 2005, all these incentives and programs led Seattle households and businesses to recycle nearly 335,000 tons of paper, cardboard, glass, metal and plastic food and beverage containers, plastic bags, yard debris, food scraps, textiles and other materials. That translates to reducing GHG emissions by 563,000 metric tons of carbon dioxide equivalents (as calculated by EPA's model using Seattle specific data.) While most of the avoided emissions occurred in places other than in Seattle (for example, manufacturing plants using recycled aluminum aren't located in Seattle) they are no less important in addressing the global climate problem.

Urban forests – like all forests and vegetation - remove carbon-dioxide (CO_2)from the atmosphere during photosynthesis, storing that carbon in their tissues. Seattle's urban forest includes all the trees and under-plantings in the city – trees along streets, in parks, greenbelts, on college campuses, and on private property. Preserving and protecting these trees prevents CO_2 from being released and planting more trees and understory enhances removal of CO_2 from the atmosphere. Measures to protect, restore, and sustainably manage the city's forests offer significant climate change mitigation potential.

What Seattle is doing Although known as the "Emerald City," Seattle's urban forest is in decline. Since 1972, the city has gone from approximately 40% tree canopy cover to only 18% today. And 70% of Seattle's forested parklands are so heavily infested with ivy and other invasive plants that, without intervention, they will become ecological deadzones. In many cases, deciduous trees make up a disproportionate share of the forest, replacing native evergreen conifers that deliver more climate benefits by "breathing in" CO2 year around. To reverse the trend, the City has launched a major urban forest initiative.

One element of that initiative is the *Green Seattle Partnership,* a public-private venture between the Cascade Land Conservancy and the City of Seattle. The Partnership is raising funds, volunteers, and public awareness to restore 2500 acres of forested city park lands. By 2025, the program will completely remove ivy and other invasive species and replant the 2500 acres with native trees and plants. (For more information: www.greenseattle.org)

The *Green Seattle Partnership* is part of the city's first-ever comprehensive plan for managing, restoring and expanding Seattle's urban forest. The draft Urban Forest Management Plan, which will be finalized in early 2007, calls for increasing Seattle's canopy cover by two-thirds in 30 years and builds on the parkland restoration commitments of the Green Seattle Partnership by:

- Adding 649,000 trees citywide over 30 years;
- Improving the health of city-owned street trees by increasing pruning to an industry-standard cycle of every five to seven years;
- Creating a long-term program to educate landowners about the value of trees;
- Devising incentives and regulations that encourage residential planting;
- Coordinating tree management among all city departments with tree maintenance responsibility (Parks, Transportation, City Light, Seattle Public Utilities), including a comprehensive inventory and analysis of the urban forest;
- Creating a partnership between citizen, government and business to bring additional financial, volunteer and management resources to tree restoration.

Estimating the carbon sequestration benefits of an urban forest is an extraordinarily complex undertaking because there are so many variables, among them:

- How much CO2 trees take up and store depends on the tree species, age and size. Bigger trees do more photosynthesis and take up more CO2;

- Deciduous trees take up CO2 in the spring and summer as they leaf-out, and, when their leaves fall in autumn, much of that CO2 is emitted as the leaves decompose. But if the leaves are composted and added to soil, some of the CO2 is sequestered;

- Evergreen trees sequester carbon year around. In a rural or mountain forest, the lifetime of a conifer is predictable and so the CO2 benefits can be calculated relatively accurately. In an urban setting, however, the trees are subject to a lot more stress – invasive species, development, and root compaction - and are less likely to reach maturity.

Because of these difficulties the net climate protection benefits of Seattle's urban forest have not been calculated. Nonetheless, it is a fact of nature that trees and plants are the "lungs of the earth" and the climate benefits only add to the economic, social and environmental benefits of a healthy, sustainable urban forest.

Adapting to Climate Change

The consensus among climate experts is that climate change is happening now and is likely to increase. Average global surface temperatures rose 1.1 degrees Fahrenheit during the 20th century. Northwest winters have warmed 2.7 degrees since 1950, in part because of cycles in ocean conditions. Global sea levels have risen around four to eight inches. Even if the world was to stop burning fossil fuels tomorrow, existing levels of atmospheric CO2 would continue to contribute to warming temperatures, melting sea ice, disappearing glaciers and the myriad other climate changes and impacts already being observed.

Our approach is that we can and must reduce our levels of climate pollution to slow the rate of climate change. But we must also plan for and adapt to the climate change that is inevitable here in the Pacific Northwest. Building on adaptation efforts already underway at Seattle City Light and Seattle Public Utilities, the City will develop and implement a comprehensive strategy to ensure that climate impact scenarios are appropriately integrated into City policies, operations and services.

Projected climate impacts in the Pacific Northwest

The University of Washington is home to the Climate Impacts Group (CIG), an interdisciplinary group of scientists whose focus is aimed at understanding the consequences of climate fluctuations for the Pacific Northwest. According to the CIG, as a result of global warming, in the next 20 to 40 years, our region will likely see:

- Regional warming (3-5°F by 2040s) which is likely to be faster than global warming (1-4°F by 2040s);
- Decreased mountain snowpack, which provides much of our area's water supply and hydroelectricity generation;
- Water levels in south Puget Sound are expected to increase 1.3 feet by 2050, higher than in most areas of the world because changes in Pacific Ocean wind patterns drive more seawater into Puget Sound;
- Higher winter and lower spring streamflows in rivers that depend on snowmelt; already snowmelt is occurring 12 days earlier than it did 50 years ago;
- Increased winter flooding;
- Potential increases in forest fires;
- Impacts on salmon habitat from increased winter floods, decreased summer streamflows and warmer water temperatures;
- Increased landslides due to increased winter rainfall.

It is vital that the City – and all levels of government – plan and prepare for the climate change that is inevitable. Because Seattle's water and hydroelectricity are so dependent on the hydrology cycle in the Cascade Mountains, the City has focused it's planning and adaptation analysis work there.

Water supply

Seattle Public Utilities (SPU) supplies drinking water to more than 1.45 million people in Seattle and surrounding communities. Most of that water originates in the South Fork Tolt River and Cedar River watersheds, both in the Cascade Mountains. Given the projected climate changes in the Cascades – reduced snowpack, earlier snowmelt, higher air temperatures – the impacts for the water utility could be significant.

To understand and plan for the potential impacts on both water supply and demand, SPU contracted with the University of Washington's Climate Impacts Group to develop a method to downscale climate models to a regional level, producing a series of modeled results of climate change impacts on water supply in the Tolt and Cedar watersheds. The averaged modeled results of the study show that in 2020, there would be approximately 7% less reliable yield in water supply – 12 million gallons a day, which would not affect SPU's abilities to meet projected demands. In 2040, the study projects a reduction in yield of approximately 24 million gallons a day. If this were to occur, existing water resources would still be sufficient to meet the forecasted water demand through 2053, assuming no further decreases in yield after 2040. Nonetheless, SPU is continuing to evaluate new supply alternatives and to track climate science developments in the event that conditions indicate new supplies are needed sooner.

Over the years, in response to varying weather conditions, SPU has developed and applied a number of adaptation strategies to enhance the water supply system while also meeting stream flow needs for fish. Many of these techniques will also be used in the future to adjust to further climate change. The winter of 2005 is a case in point of how adaptation is already working. That year, record low winter snow pack created deep concern about the ability to meet water supply needs for the year. But the low snow pack also reduced the probablity of floods from snow melt, allowing SPU water managers to capture more water in storage than a normal year. This provided enough water to return to normal supply conditions by early summer despite the lowest snowpack on record.

SPU will continue to expand its understanding of climate change science to further refine its understanding of potential climate impacts and how the water system can adapt over time.

Hydroelectricity

Seattle City Light's hydroelectric projects on the Skagit and Pend Oreille Rivers provide about half of the power its customers need. The remainder comes from a mix of power sources, including long-term contracts with the Bonneville Power Administration (BPA). The projected climate changes in the Cascades - reduced snowpack, loss of glaciers, earlier snowmelt - have the potential for significant impacts on City Light's hydrosystem.

To better understand and plan for these impacts, City Light supported research at the UW's Atmospheric Sciences Department to model the effects of climate change specific to the Skagit watershed. City Light will continue to support research of this kind and integrate the information into its planning for operations and future resource needs. In the long term, SCL will look at the potential need to modify operation on the Skagit. To be consistent with National Energy Reliability Council requirements, City Light has already adopted a more conservative planning standard for its Integrated Resource Plan, effectively reducing the amount of generation the utility can count on from its hydro resources in the future.

City Light is also planning for more variability in the precipitation levels in river basins, including the increased potential for drought and floods. The Utility's Power Management Division is working closely with the Natural Resources and Environmental Planning Unit to determine potential effects on the salmon and steelhead in the Skagit.

What's next

There are a number of other likely climate impacts the City must consider in its long term planning. For example:

- Storm water management: if rainfall becomes more intense, i.e., falling harder shorter periods of time, will our existing system be able to handle the increase? Or will our streets flood more often? What kind of infrastructure, policy or land management changes could be adopted to slow and hold excess stormwater?

- Urban forestry: how will the native conifers in our parks and green spaces manage over the long term with warmer temperatures and fewer winter freezes? Will the trees be more prone to insects and diseases? Should our plans to plant more trees include different species that are native to warmer climates? Will City landscaping require more maintenance to survive such as regular summer watering? Would increased investment in urban forestry help manage the drainage challenges mentioned above?

- Building codes: as summer temperatures increase, so will the demand for air conditioning. Should building codes be revised to encourage techniques that avoid or minimize cooling needs such as less thermal mass, natural ventilation and larger floor-to-ceiling heights. And should mechanical ventilation be added as a requirement for buildings such as nursing homes?

- Longer and hotter heat spells: many cities are already experiencing more very hot days in the summer, contributing to increased smog and a variety of public health issues, particularly for vulnerable populations. How likely is it that Seattle will experience a "heat emergency"? Should our emergency response plans be expanded to include heat emergencies?

- Sea level rise: what level of sea level rise will Seattle experience over what period of time? What will be the impact on Seattle shorelines for development regulations, the location and design of shoreline facilities and habitat restoration projects?

To address these and other climate impact issues, the Office of Sustainability and Environment will convene an interdepartmental team to prioritize issues and recommend to the Mayor specific strategies, actions and timing. Given that some adaptive strategies may require years to implement, this is a priority issue and OSE will deliver a recommended Citywide adaptation strategy by the end of 2007.

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